

# **HERMIT CRABS AS PETS**

**DANIELE  
SCERMINO**





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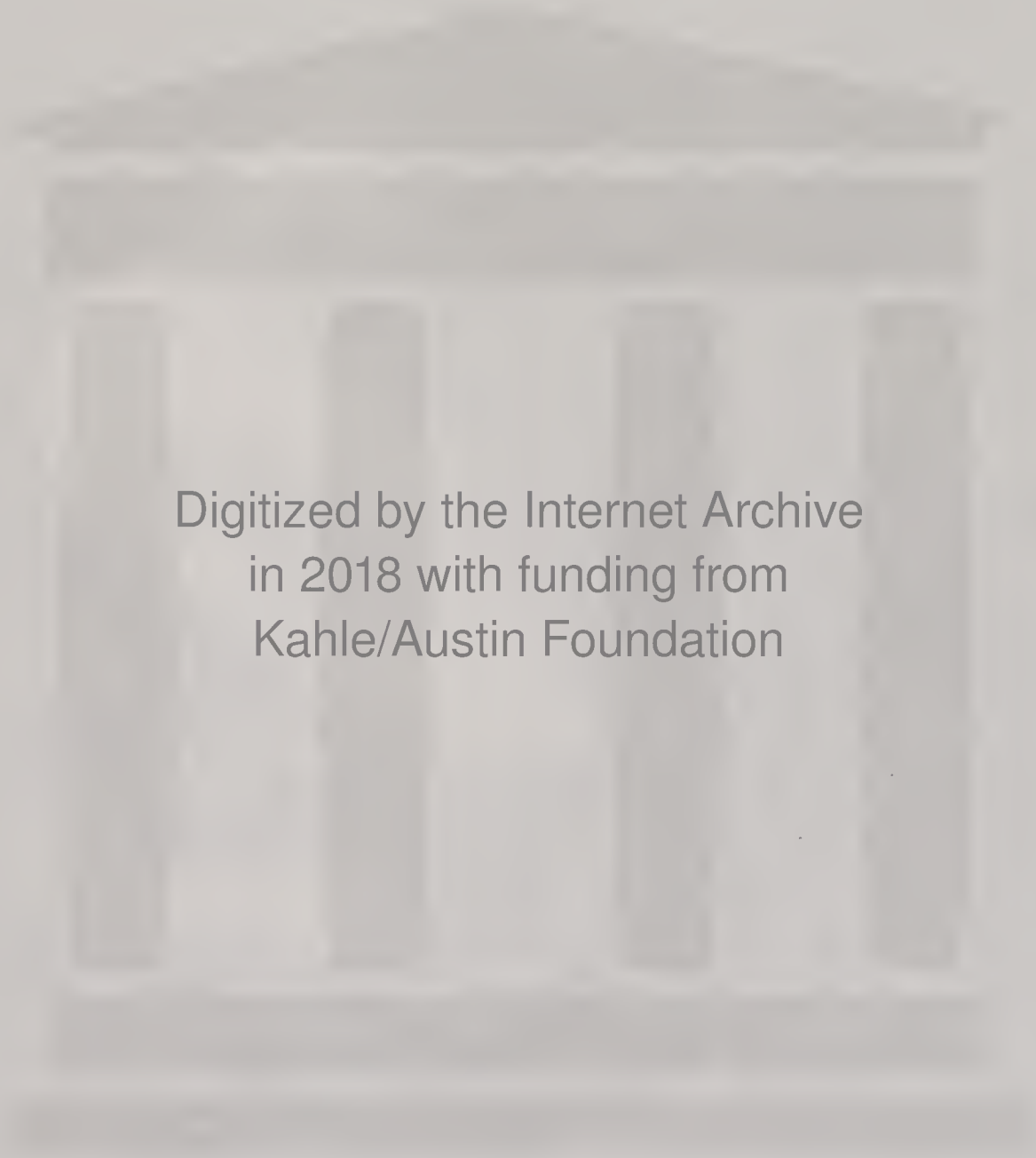
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Photographs.  
Gary Sweetman  
Bradenton, Florida.



# Why a Land Hermit Crab?





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## **Why a Land Hermit Crab?**

To begin with, they are exotic, a really different sort of pet. Many people today desire some sort of exotic pet, and after all, what could be more exotic than a back-packing ten-legged invertebrate? Yet while they are exotic, land hermit crabs are not at all dangerous like so many other exotic creatures.

They make a good pet because they are small and do not require much space. A couple of small pet treecrabs can be kept in a goldfish bowl, if need be; and if kept clean, they do not require more than a cubic foot of space to live happily for many years.

A pet land crab demands very little of your time and is one of the quietest pets you are likely to find. They are also one of the hardiest creatures known. Disease is rare among them and even if a leg or an eye is broken off, it will grow back.

A pet can be all of these things but still not be any fun. However, treecrabs are entertaining, and that is the best reason for keeping them. They can climb like a squirrel, retract like a turtle, switch shells faster than a carnival trickster, and dig like a clam. They are also remarkably intelligent for a creature their size, so you can look forward to many hours of entertainment watching pet crabs.

## **Anatomy of a Land Hermit Crab**

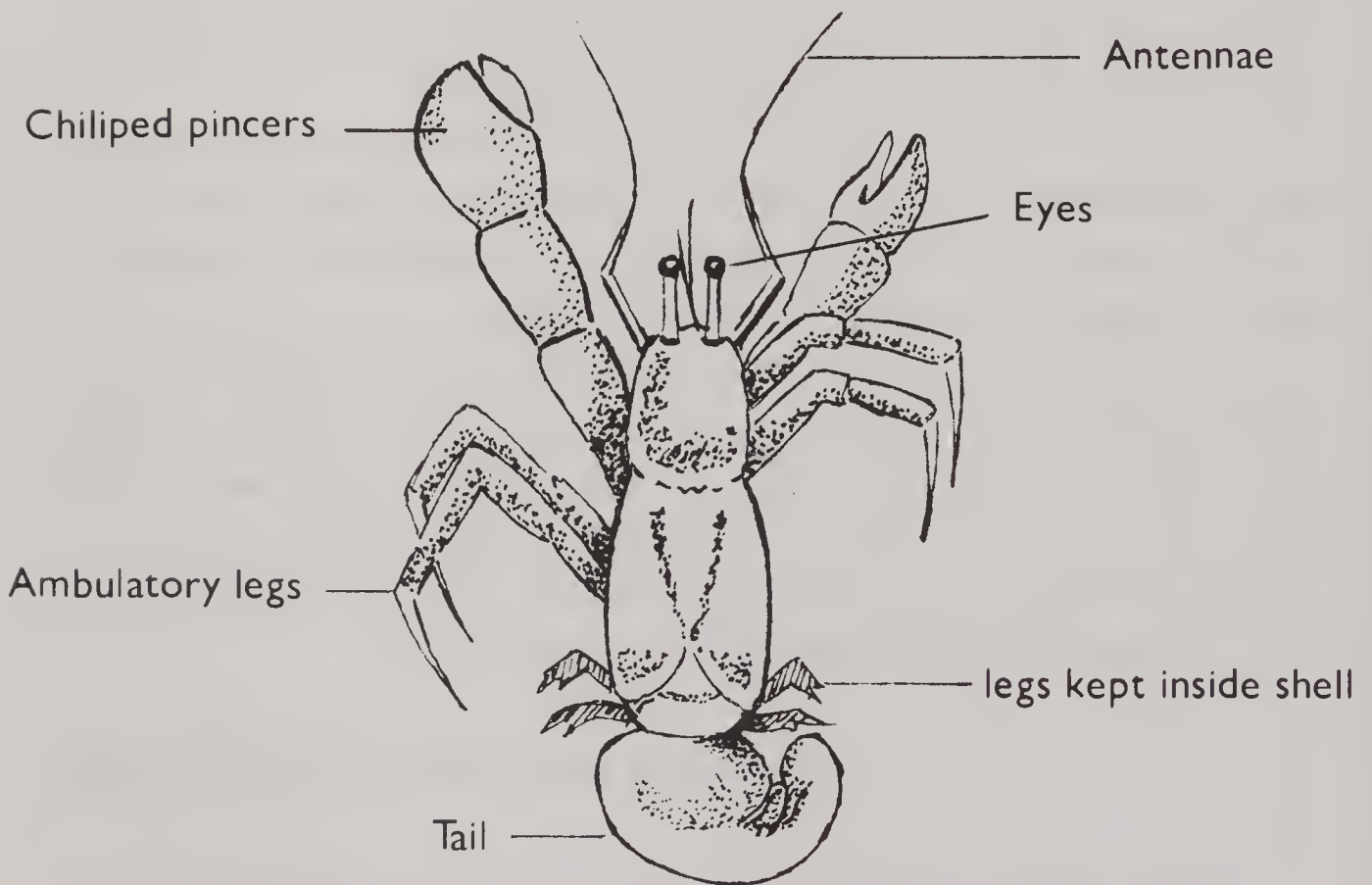
The front part of the body is covered by a chitinous exoskeleton. Chitinous simply means it is made of a substance called chitin, which on the land hermit crab is similar in consistency and appearance to your fingernail. An exoskeleton, as we have seen, means that the skeleton is outside the body. The rear part of the body of treecrabs, the tail section, is soft and almost like skin. Here the exoskeleton is very soft.

There are two features of treecrab exoskeletons which are of interest. First, it is somewhat like your skin in that there is always a new layer growing underneath the outer, dead layer. This under layer



is soft and pliable, but the outer exoskeleton is harder, with the noted exception of the tail. Since the outer exoskeleton is rigid and does not stretch or grow, the crab body is trapped within and cannot grow very much. Fortunately, nature has solved this problem by periodically causing the exoskeleton to be shed. The crab sheds its wrapper and then grows a small amount very rapidly until the new exoskeleton hardens. This is how all decapods grow, in periodic spurts and this is how land crabs are able to regenerate lost appendages. Should a claw or leg or eye have been broken off, a new one simply develops beneath their shell prior to shedding.

Our illustration shows the various body appendages of the land hermit crab.



The left front chiliped is from two to three times larger than the right one and this is the main defense weapon crabs have against attack. The right chiliped is smaller and used for climbing and feeding. It is used for tearing off bits of food which are then grasped and brought to the mouth. This feeding method is very interesting to observe; the crabs look almost as if they are feeding themselves with a little hand. They also use their right claw for climbing by grasping branches and



leaves. The next two sets of legs are the ambulatory legs with which the crabs climb and walk. These legs are long, segmented and come to a point. The final two sets of legs are kept inside the borrowed mollusk shell and are used to maneuver the shell through narrow passages, to secure the shell against removal, and to remove sand and waste from within it. These two sets of legs are much smaller than the other three sets, but functionally they are every bit as important to the hermit crab.

The eyes are attached at the end of stalks situated between the two chilipeds and they move independently of each other allowing two fields of vision. Near the stalked eyes the hermit crabs have four antennae; two long, two short and hinged. These four antennae serve various sensory functions for treecrabs, such as hearing and smell, and possibly for taste also. A healthy, active crab will wave its antennae about continuously, perceiving changes in his environment and keeping alert to the availability of food.

There is one function of hermit crab anatomy that is important for us to understand; how they breath. Their ability to respire is perhaps the most critical function of their bodies, without oxygen the carbs would die within minutes.

Hermit crabs are able to breath in two ways. When they take up life on land, their gills become modified shortly thereafter. These gills are near their chilipeds and ambulatory legs and allow them to extract oxygen from the atmosphere. The underside of the soft tail section is criss-crossed with very fine blood vessels which also absorbs oxygen molecules directly from the air. Thus for either method of oxygen intake to work properly and meet their needs, moisture and humidity must be present. In a very dry environment, hermit crabs may die, not only from dehydration but also from suffocation, or the inability to respire. The presence of high humidity and a continuous supply of fresh water which they collect and carry in their mollusk shell will mean the difference between a lethargic, oxygen starved and barely alive treecrab, or one that is active, healthy and interesting.

## **Where Do Treecrabs Come From?**

The land hermit crabs sold in America are found mostly in the tropical Caribbean area. Wide distribution is assured because during their larval stage they live in the ocean as plankton and are carried by the winds and currents. When they finally come ashore, they are liable to be found on almost any beach in the Caribbean. This assures

continuous redistribution of the species throughout their natural range.

## Feeding Land Hermit Crabs

Feeding them is easy if we understand that they are nocturnal omniverous scavengers. Nocturnal simply means that they prefer to feed at night. Omniverous means that they eat almost anything, animal or vegetable. Scavengers means that they eat whatever is available. Guessing their nutritional requirements therefore is not too difficult. Certainly they need protein, which supplies the basic building blocks of nature. They no doubt metabolize the carbohydrates and sugars found in fruits and vegetables too, since they eat these readily. They can even digest the fibers of wood. Vitamins and trace minerals are needed too. Because they are scavengers, we can assume that their bodies are able to convert whatever they eat into the elements needed for their survival. Yet even though this is probably true, we can make an effort to provide them with a balanced diet in captivity.

A good commercial treecrab food (this food claims to have ingredients essential to proper shedding of the exoskeleton), should be used as a diet supplement trusting that the claims are valid. It is also advisable to soak any dried foods in water to soften it before feeding it to hermit crabs.

### Representative Diet Table for Tree Crabs

Raw Meats	Raw Fruits	Raw Leaf Vegetables	Cooked Vegetables	Other
Ocean fish	Apples	Romaine Lettuce	Lima Beans	Peanut butter
Ocean shrimp	Pears	Escarole	Squash	Crackers
Beef liver	Grapes	Leaf Lettuce	Cooked carrots	Dry dog food
Beef heart	Oranges	Bean Sprouts	Green peas	Dry cat food
Lean beef	Bananas	Celery Leaves	Potato	Crab food

Offer treecrabs at least one food from each category at least once a week for a balanced diet.

One way to be sure their diet includes appropriate salts and minerals is to use sand actually collected from a clean beach area to use in their crabarium. The sand is certain to be loaded with sea salts and minerals and contain a large amount of calcium carbonate from crushed shells, all of which is possibly needed for health and proper nutrition. If sand is to be collected, be sure to collect it from an intertidal area. This is between the high and low tide marks where the sand is richest in the elements of evaporated seawater which would supplement the diet of your crabs.

If you do not live anywhere near the ocean, go to an aquarium store or pet shop and purchase a couple of pounds of very fine grade dolomite or crushed coral sand to mix with your other sand (we recommend #6-20 Silica) in a ratio of about 1:5. To this, add about a quart of sea water obtainable from a health food store or dealer in marine fishes, and allow it to evaporate in the sand. This will provide your crabs with an environment rich in minerals and salts which may be essential.



An 8 inch clam shell, such as this *Tridacna* species, makes an ideal water container for the larger crabariums.



Another important part of your crab's diet is a constant supply of fresh water. This is essential not only for drinking, but the crabs also carry a small amount of water within their borrowed mollusk shells to moisten their soft tail. Thus, the water dish should be cleaned and refilled daily.

It has been recommended by some authors that a metal jar lid be used as a water dish. This seems unwise, however, since crabs are sensitive to dissolving metals, the jars do not hold much water, they tip easily, and they are unsightly. We recommend using various types of clam shells. One advantage of shells is that the composition is calcium carbonate, and this mineralizes the water very slightly. This should benefit the tree crabs over an extended period of time.

## **Schedule of Crab Care**

### **Daily Care**

1. Feed and remove uneaten food from previous feeding.
2. Change water in water dishes.
3. Sprinkle tree crabs lightly with lukewarm water, using a turkey baster.

### **Weekly Care**

1. Wipe glass of crabarium inside and out with a paper towel.
2. Inspect sand for cleanliness and buried uneaten food.
3. Even out sand and make sure that no rocks have been undermined by digging.

### **Bi-monthly Care**

1. Clean crabarium, replace sand.
2. Inspect rocks and wood for fly larva, and sterilize if necessary.

## **About the Shells**

As you have probably guessed, it is not part of his body, but a borrowed "mobile home." Your crab uses his seashell for protection and to keep his tail moistened. He may also store food in it occasionally. He will leave it voluntarily only to switch to another shell therefore you must never attempt to remove him forcibly. He will more than likely allow himself to be torn apart before he will give up his shell.



It is instructive to note that in nature, treecrabs are found in beachworn, chipped, unobtrusive shells. The pretty shells you see them wearing in pet shops and other retail outlets are not those they would normally wear in the wild. The reason for this is for camouflage. No intelligent crab would crawl about the beach wearing a bright, colorful shell if he could help it.

Although wild crabs want to go unnoticed, our captive pets need not worry about predators. Thus for our own satisfaction we should display them in the prettiest shells obtainable. Aside from beauty, which is nonfunctional, the main consideration is the size. The shells to be offered must be slightly larger than the shell already occupied if its current shell is getting too small for him. This motivates the hermit crab to exchange his shell for one which will fill his needs better as he grows.

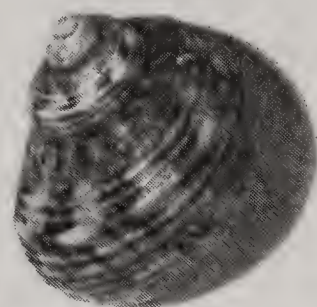
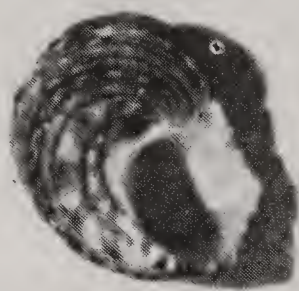
When selecting shells for your crabs, be sure that the interiors are clean, roomy, and more rounded than oblong. It is also important that the shells have no small holes other than the opening. Try to provide your crab community with a surplus of attractive shells. This will eliminate the possibility of competition among the crabs and will be entertaining as well, since the hermits will be more likely to switch shells if extras are available.



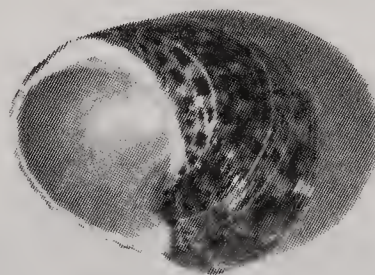
King Crown & a carved Glauca shell.



Crab approaches prospective new shell, since his own has become too small.



A decision is made, the crab wastes no time in changing



to the new, larger shell.

A perfect fit, and the happy hermit continues on his way with his new mobile home.

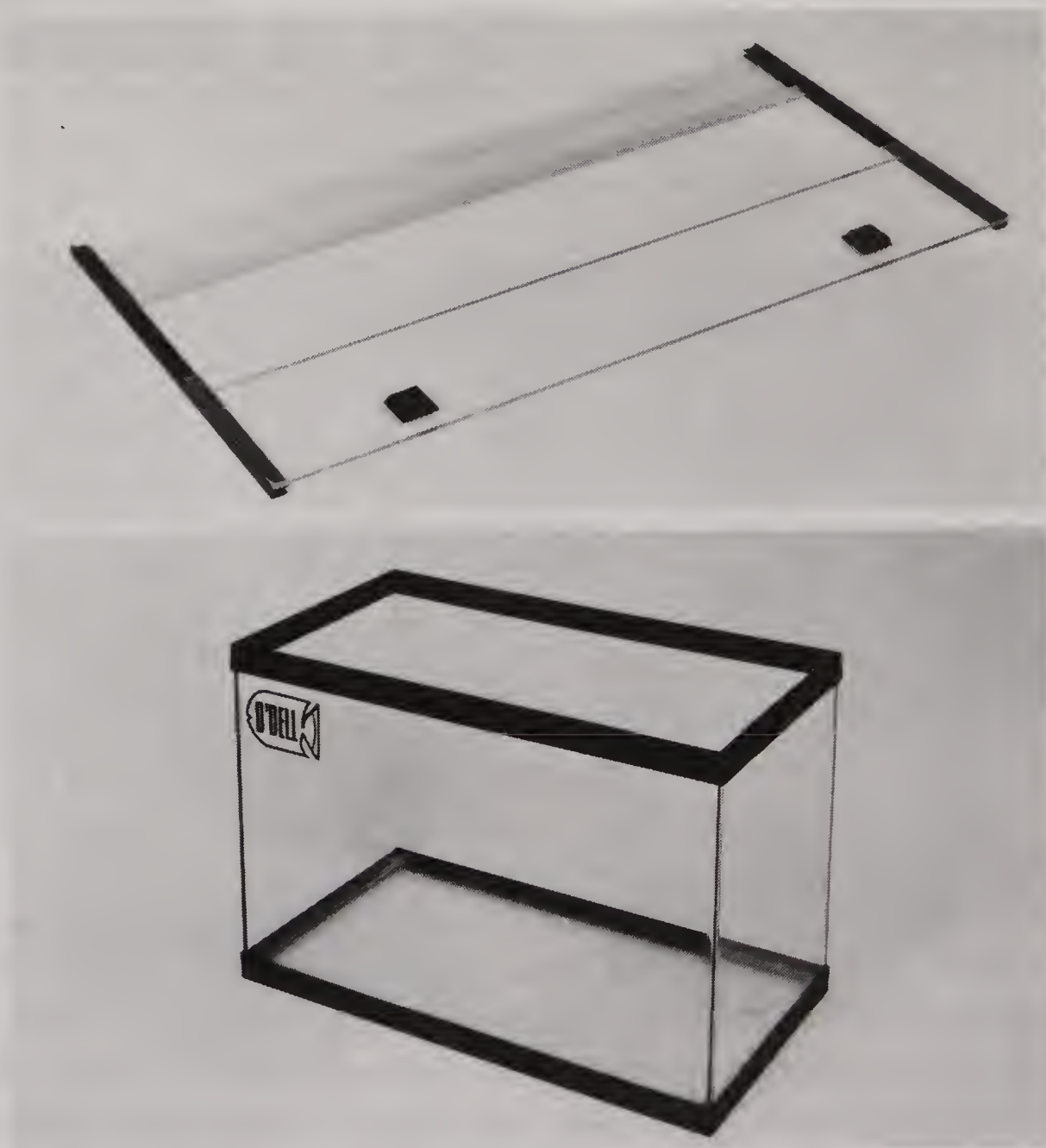




## The Crabarium

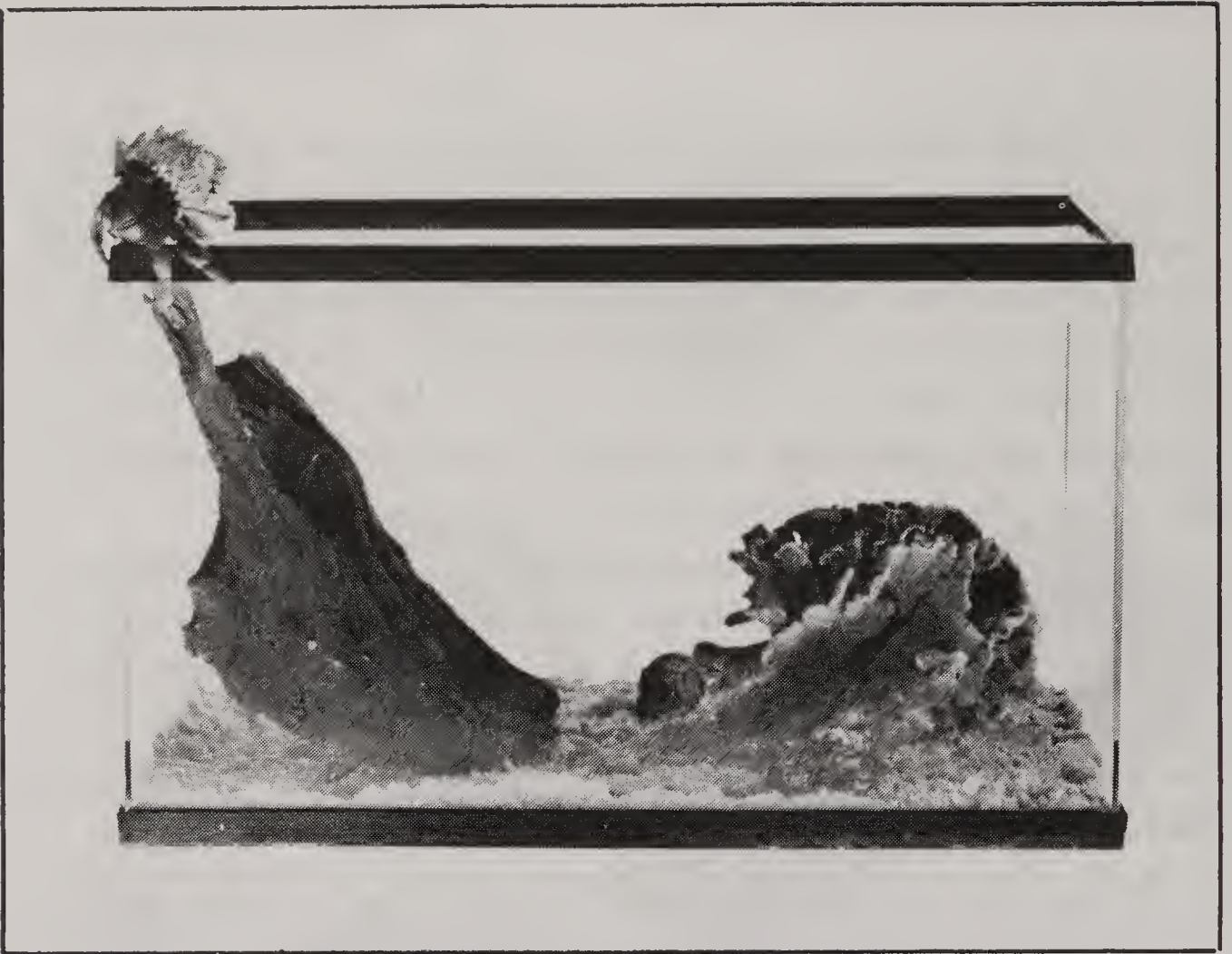
When choosing a container for your treecrabs, a few general requirements should be considered. The first is the material with which the container is constructed; it should be glass, and it goes without saying that the crabarium should be escapeproof. The third general rule should be roominess. A ten gallon aquarium is ideal for half a dozen thimble sized hermits, but a couple of four inch crabs would be hard pressed for elbow room. Roominess then, is relative to the size of the crabs and the number of them to be kept.

One container that seems ideally suited as a crabarium is an aquarium. For cheapness, a second hand, or leaking aquarium will do. The best type of aquarium to use is the newer all-glass variety with a molded plastic rim. The rim is important because no crabarium is complete without a sliding glass or hinged top. The top serves to maintain humidity and renders the aquarium escape proof.



A 10 gallon aquarium with a sliding glass top makes an ideal crab home. Top retains crabs and humidity.

Courtesy O'Dell Manufacturing Co.



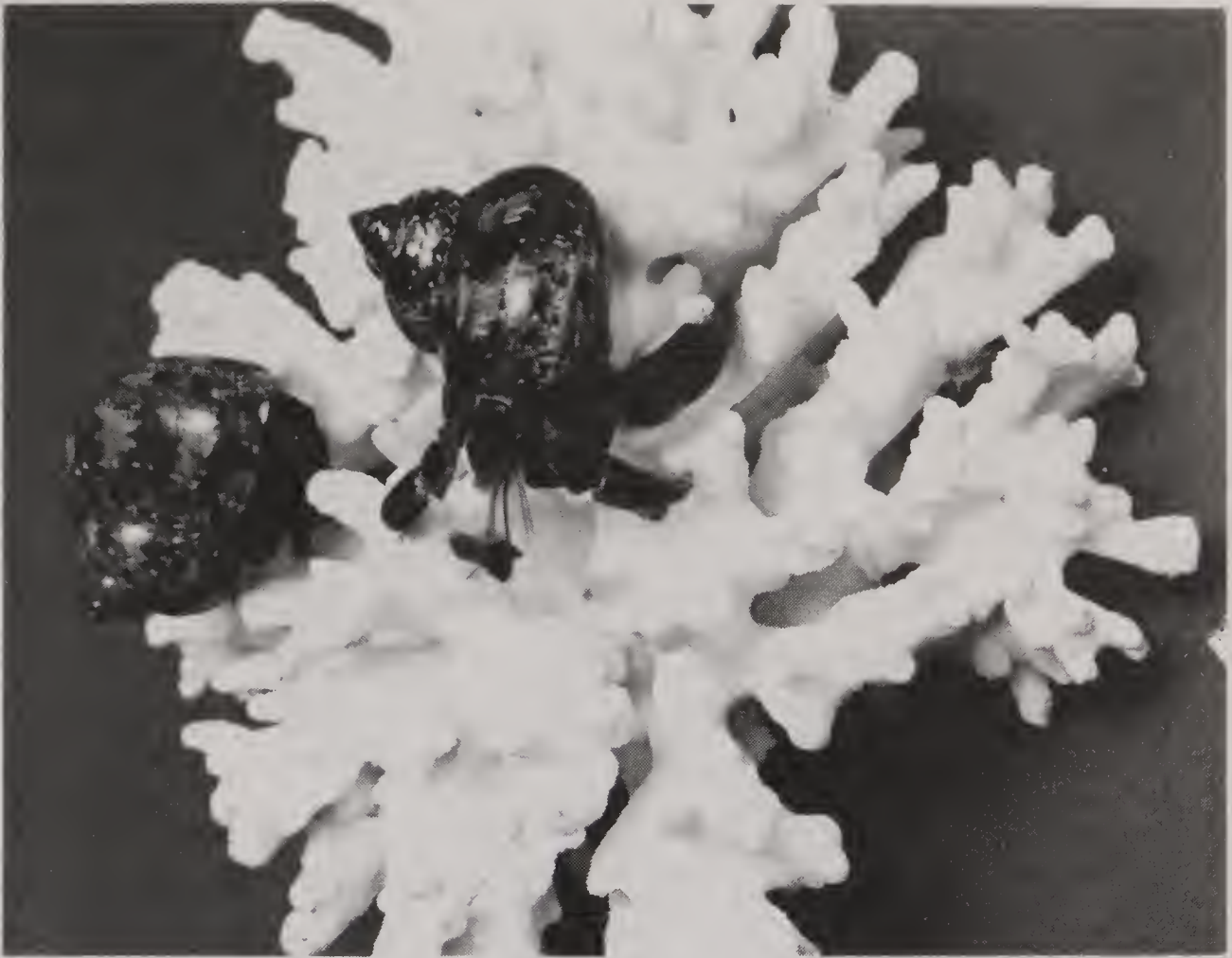
Avoid lay-outs like the one in the photograph. Keep ornaments away from the upper edges of the container, or the intelligent crabs will soon find an escape route.

After you have added your beach sand to your aquarium you are ready to decorate it. For the crabs the decoration should include climbing areas for them to exercise and secondly the decor should include hiding places where the crabs can rest undisturbed when they so desire. These two principles will make the crabs feel more at home.

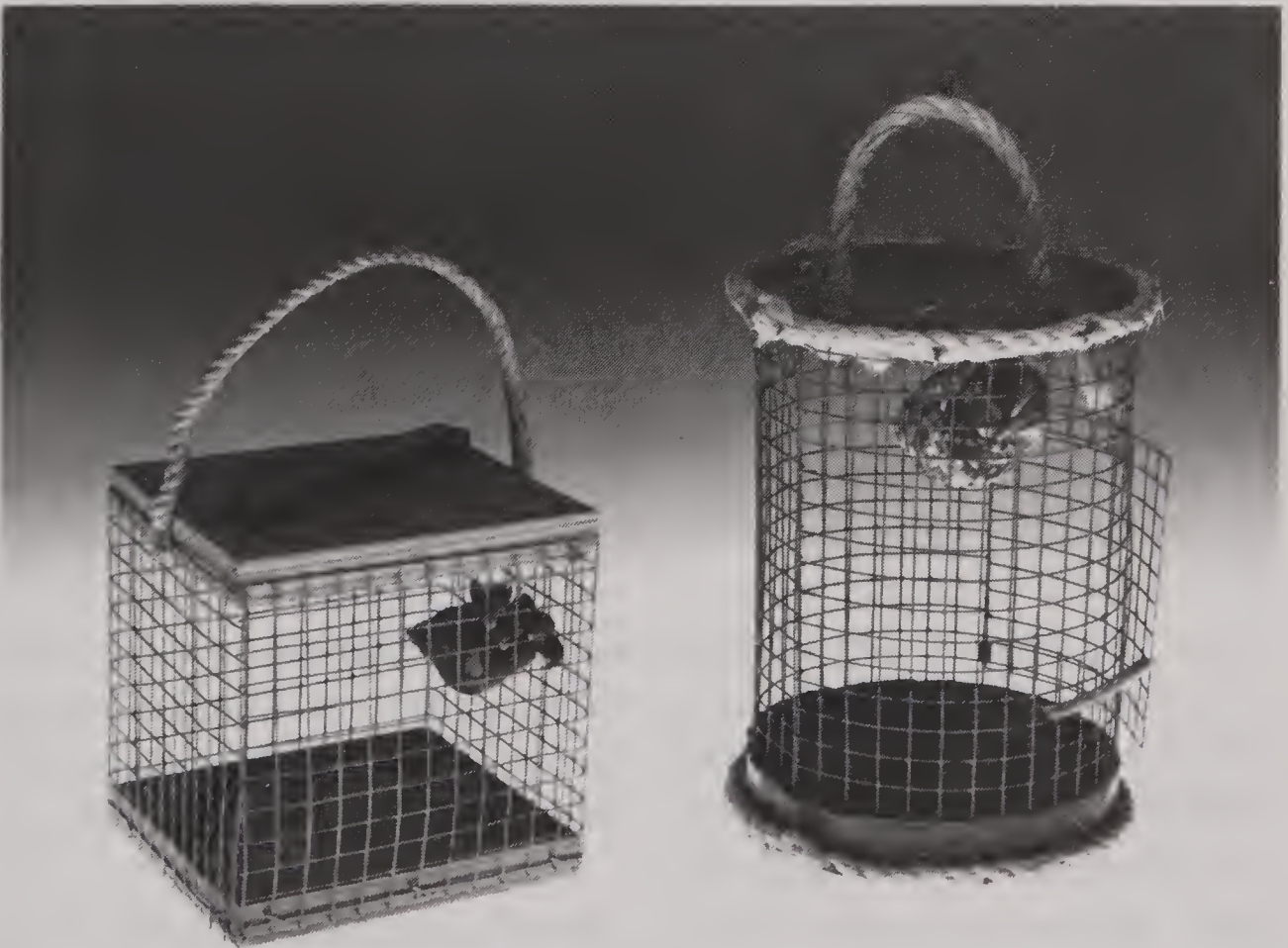
Some crab owners use pieces of coral in their crab tanks and the hermit crabs seem to enjoy climbing over them. Coral adds a real touch of elegance to the aquarium and may be used alone, or as a center piece with other decorations.

A crab tank must never be placed in a window, especially with a western exposure. An afternoon summer sun might turn the crabarium into a Crab-Bake. Likewise do not place your aquarium under an air-conditioning unit or the crabs will become inactive due to cold temperatures. Crabs are most active at temperatures ranging from 65 degrees to 95 degrees. In cold rooms it is good to add an aquarium light to your crab tank to provide the necessary warmth.





Tree crabs love to climb on pieces of coral.



Small cages are useful for transporting crabs, but they make poor permanent homes because they do not retain humidity.

In order to understand the behavior of our hermit crabs we must begin by examining their personalities. Gregariousness, which means that they live, eat, and seek shelter in groups, is an important facet of the hermit crabs personality. Far from being hermits (treecrabs are called hermits because they live in a borrowed shell, like a hermit's cell in certain religious orders), they are sociable creatures and are usually found in sizeable groups. This may be related to their shell changing activities and the scarcity of shells in nature. Perhaps by remaining in groups of mixed sizes, the crabs are assured the continuous opportunity to exchange shells as they grow. A solitary existence could make shell finding too risky, and therefore reduce the probability of survival of the species.

Once we understand that hermit crabs normally live in groups, we will want to keep several in our crabariums. After all, a simple key to keeping any wild creature successfully in captivity is to imitate as nearly as possible its natural environment.

We, as human beings, make up part of our pet crab's environment and many people have wondered how crabs react to humans, and if they show affection. Like almost all creatures kept as pets, they become used to their owners and will gradually become more active in your presence. They will learn to tolerate you, but do not expect them to be affectionate. By human standards, hermit crabs do not show affection. Yet we might consider that to them, affection may mean the absence of hostility and fear, acceptance of our presence and trust. If we find that our pet hermit crabs are at ease in our presence, we might say, that in a sense we have earned their affection.

## Handling and Taming

To tame a crab, it must be handled, and the best way to begin is by holding the crab so that he cannot pinch you. This is done by grasping the shell, as shown in the illustration, so that the crab cannot reach your fingers. It is as well to hold your crab in this way until you are certain he will not pinch you.

Begin taming your crabs by holding them frequently. Let them gain confidence in you by showing them you will not harm them. Even a tiny crab can give you a very painful nip if he finds a soft spot, such as between your fingers, and they do not let go easily. When a crab





This is the best way to hold your pet crab until you get to know each other better.

does pinch you, it is probably because he has a fear of falling. Remain calm and get to the nearest running tap. Hold the crab under a running tap with luke-warm water and this will cause him to let go.

Once you have tamed your crab, you need not fear being pinched and you can look forward to a lasting friendship with him. Just remember to treat him as you would want to be treated if your roles were reversed.

## **Diseases of Tree Crabs**

At present, little is known about the diseases which affect land hermit crabs. Fortunately, their resistance to disease is very strong and even with less than perfect care, the crabs are likely to remain disease free for long periods.



We repeat the need to keep the crab's quarters humid to prevent suffocation. In a very dry air-conditioned or heated home, a crab is liable to die of slow suffocation without his owner realizing the true cause of his death. Crabs simply cannot breathe unless there is adequate humidity.

Another potential cause of death is poisoning. For this reason, always keep your bug sprays, bug bombs, and roach pellets away from your crab tank.

Still another occasional cause of death among land hermit crabs, although not a disease, is the inability to shed the exoskeleton. Shedding is still not completely understood, and all requirements therefore are not known. For example, lack of sunlight, or lack of calcium in the diet might be the reason which could lead to the inability to shed, which would be fatal. Here again, we must do what we can to prevent this by using basic common sense and providing proper care.

With attention to cleanliness, however, there is little chance of catching anything from your crabs, or their dwelling and they are likely to live a long, healthy, disease-free life as members of your household.



Tree crabs can climb up the vertical sides of a piece of wood, coral and most rocks.



## Breeding

Breeding is believed to occur by internal fertilization through copulation. In most genus of the order Decapoda, the male has an intromittant sexual organ termed a gonopod. This is essentially a hollow tube which channels the spermatozoa to a receptacle within the female where it is stored. Somewhat later at an opportune moment, the female expels her eggs and insures that they are fertilized. This method of spawning is biologically placed somewhere between the reptiles which fertilize the eggs within the female, and the egg-laying fishes, which fertilize the eggs at the moment of expulsion or spawning.

After the female hermit crab has expelled her eggs, and when they are about to hatch, she carries them to the ocean shore in the evening and unceremoniously casts them adrift on the outgoing tide. The larval hermit crabs spend a period floating and swimming about the ocean as plankton, many of them are eaten by marine fishes and other sea creatures. They pass through several larval stages. Some survive, and as they near the end of their larval period, they come ashore to begin their lives as young land dwelling hermit crabs. Once ashore, they shed and grow for several years before they reach breeding age and reproduce themselves. This is basically the life cycle of *Coenobita*.

Distinguishing the sexes of the land hermit crabs is impossible while they occupy their shells and so any curious pet owner need not concern themselves with the sex of their hermit crabs.

## Moulting

The most important aspect of moulting for the owner of land hermit crabs is recognizing this interesting feat. Moulting is a growth period as well as a regenerating period. The hermit crab may bury itself in the medium of his home or may shed the exoskeleton on the surface during the moulting period. The shedding can be correlated with that of a snake. However, the hermit crab will retain his exoskeleton or skin at the opening of its shell. This is done to enable the crab to eat this shedding providing the necessary calcium for its future well being. There is no way to determine when a crab will moult except that you will notice your crab becoming very inactive and he will most likely bury himself for two weeks prior to shedding his exoskeleton. Small crabs may moult as frequently as every other

month while larger crabs may not moult for eighteen months or longer.

At this time of shedding many new owners may fear the death of their crab and discard it before any further investigation. But one only has to peek behind the discarded exoskeleton to see a very pink and soft hermit crab completing its moult. Eureka! He is growing. Now place the crab back into the medium, preferably close to its water dish as it needs extra moisture and in about 10 days your crab will return to its normal activities.





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